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EOSDIS Core System Project

Flight Operations Segment (FOS) Release A Version Description Document (VDD) for the ECS Project

Version 1.02.00

March 11, 1997

Hughes Information Technology Systems
Upper Marlboro, Maryland

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Version 1.02.00

March 11, 1997

Prepared Under Contract NAS5-60000

SUBMITTED BY

Paul Fingerman /s/	3/13/97
Paul W. Fingerman, ECS CCB Chairman	Date
EOSDIS Core System Project	

Hughes Information Technology Systems
Upper Marlboro, Maryland

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Preface

This document accompanies the delivery of the Earth Observing System (EOS) Flight Operations Segment (FOS) Version 1.02.00 patch software for the ECS project. This document describes the configuration of the Version 1.02.00 patch and the delta changes since the release of Version 1.01.01. This document reflects updates to software released as of March 11, 1997.

It is not a formal deliverable and does not require Government approval. However, it has been placed under configuration control by the EOSDIS Core System (ECS) Change Control Board (CCB). Changes to this document shall be made by document change notice (DCN) or by complete revision.

Any questions regarding distribution should be addressed to:

Data Management Office
The ECS Project Office
Hughes Information Technology Systems
1616 McCormick Drive
Upper Marlboro, MD 20774-5372

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Abstract

This document describes the configuration of delivery contents for the FOS patch Version 1.02.00 and the delta changes since the release of Version 1.01.01. It reflects updates to software released as of March 11, 1997. Since this document version only addresses the patch, it augments the version delivered with the baseline Release A System (version 1.00.00) and is not considered a full replacement.

The purpose of this document is to describe the contents of the FOS patch delivery. It briefly describes the capabilities of the product, provides an inventory of the delivery, lists unresolved problems, and addresses issues such as special operating instructions, and disclaimer notices for public domain software used in the product.

Keywords: CCB, deliver, EOC, ECL, description, instructions, inventory, FOT, FOS, manual, operations, problems, release, software, tools, user's, version, IST

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Change Information Page

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1-1 and 1-2		Original, Version 1.02.00	
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D-1 and D-2		Original, Version 1.02.00	
E-1 and E-2		Original, Version 1.02.00	
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814-RD-007-004	Original, Version 1.00.00	December 23, 1996	96-1437
814-RD-007-005	Original, Version 1.01.00	January 29, 1997	96-1480
814-RD-007-006	Original, Version 1.01.01	February 21, 1997	97-0201
814-RD-007-007	Original, Version 1.02.00	March 11, 1997	97-0299

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1. Introduction

1.1 Identification of Document

This is a Version Description Document (VDD) prepared using NASA-STD-2100-91 (NASA-DID-P500, NASA form DD250) as a guide. It is submitted as part of Flight Operations Segment (FOS) delivery for the Earth Observing System Data and Information System (EOSDIS) Core System (ECS), contract number NAS5-60000.

1.2 Scope of Document

This document describes the contents of the FOS patch 1.02.00 delivery including any new or modified COTS, custom FOS ECS software, and accompanying documentation.

1.3 Purpose and Objectives of Document

The purpose of this document is to describe the contents of the FOS patch delivery. It briefly describes the capabilities of the product, provides an inventory of the delivery, lists unresolved problems, and addresses issues such as special operating instructions, system limitations, and disclaimer notices for public domain software used in the product.

1.4 Document Status and Schedule

This VDD is submitted as a final document. Any changes to the product that require a subsequent version of this document to be released will be described in a new VDD.

1.5 Document Organization

The format and contents of this document comply with NASA-DID-P500 and NASA-DID-999 as defined in NASA-STD-2100-91.

- Introduction — Introduces the VDD scope, purpose, objectives, status, schedule and document organization.
- Related Documentation — Provides a bibliography of reference documents for the VDD organized by parent and binding subsections.
- Product Description — Describes the general capabilities and product contents.
- Inventory — Lists product inventory including COTS and custom FOS software (contents of tar file) as appropriate.
- Non-conformance Status — Discusses known problems with the FOS software that are fixed with this delivery.

- Appendices — Contain supplemental information such as: build/installation instructions, problem reporting, and public software disclaimer notices.
- Abbreviations and Acronyms — Contains an alphabetized list of the definitions for abbreviations and acronyms used in this volume.

2. Related Documentation

2.1 Parent Document

The parent documents are the documents from which the scope and content of this document is derived.

423-42-01	EOSDIS Core System Statement of Work - CN10
423-41-02	Goddard Space Flight Center, Functional and Performance Requirements Specification for the Earth Observing System Data and Information System (EOSDIS) Core System (ECS)
NASA-STD-2100-91	NASA Software Documentation Standard, Software Engineering Program

2.2 Applicable Documents

The following documents are referenced within this document, or are directly applicable, or contain policies or other directive matters that are binding upon the content of this volume.

194-207-SE1-001	System Design Specification for the ECS Project
304-CD-001-003	Flight Operations Segment (FOS) Requirement Specified for the ECS Project, Volume 1: General Requirements
305-CD-040-001	Flight Operations Segment (FOS) Design Specification for the ECS Project (Segment Level Design)
307-CD-001-003	Flight Operations Segment (FOS) Release Plan and Development Plan for the ECS Project
329-CD-001-003	

2.3 Information Documents

The following documents are referenced herein and, amplify or clarify the information presented in this document. These documents are not binding on the content of the Version Description Document.

222-TP-003-008	Release Plan Content Description for the ECS Project
320-WP-001-003	Flight Operation Segment (FOS) Commercial-off-the-Shelf (COTS) Hardware for Release A
604-CD-001-004	Operations Concept for the ECS Project: Part 1: - ECS Overview
604-CD-004-001	ECS Operations Concept for the ECS Project: Part 2, FOS
609-CD-005-001	Flight Operations Segment (FOS) Operations Tool Manual
SD-1-014	Software Nonconformance Reporting Project Instruction

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3. Product Description

This section describes the product capabilities of the FOS ECS software.

3.1 Product Description and General Capabilities

FOS Release A software was deployed November 1996 at the EOS Operation Center (EOC) located at Goddard Space Flight Center (GSFC).

FOS is responsible for mission operations, including the planning, scheduling, commanding, and monitoring of US EOS spacecraft and US EOS instruments onboard the US and International Partner (IP) series of spacecraft. FOS is composed of the EOS Operations Center (EOC) located at GSFC and Instrument Support Toolkit (IST) associated with the Principal Investigations (PIs) and Team Leaders (TLs).

Nine subsystems have been defined to support flight operations. Individually these subsystems perform specific, unique functions; collectively, they provide a set of interrelated services for the Flight Operations Team (FOT) and the IST user community. These subsystems are:

1. Analysis Subsystem (ANA)
2. Command Subsystem (CMD)
3. Command Management Subsystem (CMS)
4. Data Management Subsystem (DMS)
5. FOS User Interface Subsystem (FUI)
6. Planning and Scheduling Subsystem (PAS)
7. Real-Time Contact Management Subsystem (RCM)
8. Resource Management Subsystem (RMS)
9. Telemetry Subsystem (TLM)

The following sections describe the product capabilities in further detail.

3.1.1 Analysis Subsystem (ANA)

The ANA subsystem provides statistics generation, User Supplied Algorithm processing, a Decision Support System (DSS), Routine Request Processing, Carryout Data, and Clock Correlation Process. The ANA subsystem is responsible for managing the on-board systems and for the overall mission monitoring. Its functions include performance analysis and trend analysis. It also cooperates with Telemetry to support fault detection and isolation.

3.1.2 Command Subsystem (CMD)

The CMD subsystem consists of three processes: Format Command, Frame Operation Procedure (FOP) Command, and Transmit Command. Format Command receives and validates command directives. FOP Command builds command link transmission units (CLTUs) according to the Consultative Committee for Space Data Systems (CCSDS) standard. Transmit command forwards the CLTUs at a specified uplink rate. CMS is responsible for transmitting command data (i.e., Real-Time commands or command loads) to EDOS for uplink to the spacecraft during each real-time contact. Command data can be received in real-time by the operational staff or as preplanned command groups generated by Command Management. The CMD subsystem is also responsible for verifying command execution on-board the spacecraft.

3.1.3 Command Management Subsystem (CMS)

The CMS subsystem contributes a Schedule Controller process, a Command Model process, a Spacecraft Model process, a Ground Schedule process, and a Load Catalog process. CMS manages the preplanned command data for the spacecraft and instruments. Based on inputs received from Planning and Scheduling, Command Management collects and validates the commands, software memory loads, tables loads, and instrument memory loads necessary to implement the instrument and spacecraft scheduled activities.

3.1.4 Data Management Subsystem (DMS)

This subsystem provides the Project Data Base Management processes, Event Processing, Telemetry Archive Process, Ground Telemetry Archive Process, and External Interface Processes. DMS is responsible for maintaining and updating the Project Data Base (PDB) and the FOS history log.

3.1.5 FOS User Interface Subsystem (FUI)

This provides graphical user interface services for all of the FOS subsystems. FUI provides character-based and graphical display interfaces for FOS operators interacting with all of the aforementioned FOS subsystems.

3.1.6 Planning and Scheduling (PAS)

This produces a conflict-free schedule of activities for spacecraft resources. PAS integrates plans and schedules for spacecraft, instruments, and ground operations. Planning and Scheduling provides the operational staff with a common set of capabilities to perform "what-if" analyses and to visualize plans and schedules.

3.1.7 Real-Time Contact Management Subsystem (RCM)

This receives and processes messages from NCC during contact. It also sends request messages to NCC during contact. Status messages are also received and processed from EDOS during contact. RCM is responsible for managing the real-time interface with the NCC and EDOS, as well as with the DSN station, as applicable.

3.1.8 Resource Management Subsystem (RMS)

This provides multiple operators access to the same data stream. It also ensures a single point of command for a specific spacecraft. RMS provides the capability to manage and monitor the configuration of the EOC. This includes configuring the EOC resources for multi-mission support; facilitating operational failure recovery during real-time contacts.

3.1.9 Telemetry Subsystem (TLM)

This provides telemetry decommutation. It also provides for memory dump and spacecraft state checks. TLM receives and processes housekeeping telemetry (in CCSDS packets) from EDOS. After the packet decommutation, the telemetry data is converted to engineering units and checked against boundary limits.

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4. Product Inventory

Delivery of FOS generally consists of commercial-off-the shelf (COTS) software, shareware software and custom ECS software. This section provides details of these components.

4.1 Inventory of Materials

4.1.1 Documentation

No additional documents are being provided with this VDD.

4.1.2 Archive Tapes

The following magnetic tape is used to archive the delivered baseline configuration of the developed software.

904-PR-030-004

Tape label: FOS_v1.02.00_31197

Distribution Date: March 11, 1997

>>> 5.0gbyte format (high density) <<<

Filenames: IST_patch.tar

IST_FOSchanged-src.tar

4.1.3 Utility and Support Software

The Utility and Support Software are included as part of the FOS Custom Software (refer to section 4.2.1).

4.1.4 COTS Software Inventory

Table 4-1 summarizes the deployed COTS software at GSFC. Refer to *Flight Operation Segment (FOS) Commercial-off-the-Shelf (COTS) Hardware for Release A* (320-WP-001-003) for the physical mapping of FOS Release A COTS hardware to COTS software.

The version 1.02.00 patch accounts for an upgrade to the Solaris Operating System from version 2.4 to 2.5.1. The reference to version 2.5.1 of the Solaris Operating System is shown in bold print in the following table.

Table 4-1. COTS Software Inventory List (GSFC)

Identification:	Component Description	Version	Patches	Vendor	Part Number
CSS-EOC-1 (CSS Server)	HP-UX Operating System	9.05			
	Motif	1.2			
ISS-EOC-1 (Interworking Equipment)	None Identified				

Table 4-1. COTS Software Inventory List (GSFC) cont.

Identification:	Component Description	Version	Patches	Vendor	Part Number
FOS-EOC-1 (Printer)	None Identified				
FOS-EOC-2 (RAID File Server)	Digital UNIX Operating System	3.2	-	DEC	
	Network Applications Support	N/A	-	DEC	
	OSF/Motif Base Software	1.2	-	DEC	
	OSF/Motif USR Digital Unix, 8 user	N/A	N/A	DEC	
	Jukebox Tier 1	N/A	N/A	DEC	
	Advanced File System Utilities	N/A	N/A	DEC	
FOS-EOC-3 (Printer)	None Identified				
FOS-EOC-4 (Printer)	None Identified				
FOS-EOC-5 (FOT User Station)	RogueWave libraries	7.0.3			
	Sybase Client	10.0.2			
	Netscape Browser	2.02			
	Solaris Operating System	2.5.1		SUN	
	Motif	1.2.3			
FOS-EOC-6 (Real Time Server)	Digital UNIX Operating System	3.2	-	DEC	
	Polycenter Netview Base System	4.1A	-	DEC	
	DEC Fuse For OSF-1	2.1A	-	DEC	
	DEC Fuse For OSF-1 c/user	2.1A	-	DEC	
	Network Application Support	N/A	-	DEC	
	OSF/Motif Base Software	1.2	-	DEC	
	DEC OSF-1 AXP Developers Ext.	N/A	-	DEC	
	OSF/Motif USR Digital Unix, 8 user	N/A	N/A	DEC	
	DEC C++ For U/A	5.1	-	DEC	
	Sybase SQL Server	10.0.2	-	-	-
	Sybase Open Client/C	10.0.2	-	-	-
	Sybase Embedded SQL/C	10.0.2	-	-	-
FOS-EOC-7 (Data Server)	Digital UNIX Operating System	3.2		DEC	
	Polycenter Netview Base System	4.1A	-	DEC	
	DEC Fuse For OSF-1	2.1	-	DEC	
	Network Application Support	N/A	-	DEC	
	OSF/Motif Base Software	1.2	-	DEC	
	DEC OSF-1 AXP Developers Ext.	N/A	N/A	DEC	
	OSF/Motif USR Digital Unix, 8 user	N/A	N/A	DEC	
	DEC C++ For U/A	5.1		DEC	
	Sybase SQL Server	10.0.2	-	-	-
	Sybase Open Client/C	10.0.2	-	-	-
	Sybase Embedded SQL/C	10.0.2	-	-	-
FOS-EOC-8 (FOT User Station)	Solaris Operating System	2.5.1	-	SUN	
	Motif	1.2.3			

Table 4-1. COTS Software Inventory List (GSFC) cont.

Identification:	Component Description	Version	Patches	Vendor	Part Number
	RogueWave libraries	7.0.3			
	Sybase Client	10.0.2			
	Netscape Browser	2.02			
FOS-EOC-9 (FOT User Station)	Solaris Operating System	2.5.1	-	SUN	
	Motif	1.2.3			
	RogueWave libraries	7.0.3			
	Sybase Client	10.0.2			
	Netscape Browser	2.02			
FOS-EOC-10 (FOT User Station)	Solaris Operating System	2.5.1	-	SUN	
	Motif	1.2.3			
	RogueWave libraries	7.0.3			
	Sybase Client	10.0.2			
	Netscape Browser	2.02			
FOS-EOC-11 (Console Manager)	Digital UNIX Operating System	3.2	-	DEC	
	Open 3D	N/A	-	DEC	
	Multimedia Services RT-DEC OSF-1	N/A	-	DEC	
	OSF-BASE	N/A	-	DEC	
FOS-EOC-12 (Console Manager)	Open 3D	N/A	-	DEC	
	Multimedia Services RT-DEC OSF-1	N/A	-	DEC	
	Digital UNIX Operating System	3.2	-	DEC	
FOS-EOC-13 (Time Gateways)	None Identified				
MSS-EOC-1 (Printer)	None Identified				
MSS-EOC-2 Management Subsystem Workstation	RogueWave Libraries	7.0.3			
	Netscape Browser	2.02			
	Motif	1.2.3	-	SUN	
MSS-EOC-3 (Management Subsystem Server)	HP-UX Operating System	9.05	-	HP	
	Motif	1.2	-	HP	
MSS-EOC-4 Multicast Server					
	Solaris Operating System	2.5.1	-	SUN	
	Motif	1.2.3			
	RogueWave Libraries	7.0.3			
	Netscape Browser	2.02			
	Sybase Client	10.0.2	-		

4.1.5 Shareware Inventory

Table 4-2 summarizes the deployed Shareware at GSFC EOC. Refer to *Flight Operation Segment (FOS) Commercial-off-the-Shelf (COTS) Hardware for Release A* (320-WP-001-003) for the physical mapping of FOS Release A COTS hardware to shareware.

There is no new shareware delivered with the version 1.02.00 patch. The table continues to be provided as a reference to shareware delivered in support of the baseline delivery.

4-2. Shareware Inventory List (GSFC)

Identification:	Component Description	Version	Patches	Vendor	Part Number
CSS-EOC-1 (CSS Server)	None Identified				
ISS-EOC-1	None Identified				
FOS-EOC-1	None Identified				
FOS-EOC-2 (RAID File Server)	None Identified				
FOS-EOC-3	None Identified				
FOS-EOC-4	None Identified				
FOS-EOC-5	Mosaic	2.4			
	emacs	19.28.1		GNU	
	ghostview	1.5		GNU	
	gzip	1.2.4		GNU	
	gunzip	1.2.4		GNU	
	sudo	1.3.1pl4			
	zmail	None identified			
	gcc	2.6.0			
	XV	None identified			
FOS-EOC-6	tcpdump	3.2.1			
FOS-EOC-7 (Data Server)	tcpdump	3.2.1			
FOS-EOC-8 (FOT User Station)	Mosaic	2.4			
	emacs	19.28.1		GNU	
	ghostview	1.5		GNU	
	gzip	1.2.4		GNU	
	gunzip	1.2.4		GNU	
	sudo	1.3.1pl4			
	zmail	None identified			
	XV	None identified			

4-2. Shareware Inventory List (GSFC) cont.

Identification:	Component Description	Version	Patches	Vendor	Part Number
FOS-EOC-9 (FOT User Station)	emacs	19.28.1		GNU	
	ghostview	1.5		GNU	
	gzip	1.2.4		GNU	
	gunzip	1.2.4		GNU	
	sudo	1.3.1pl4			
	zmail	None identified			
	XV	None identified			
FOS-EOC-10 (FOT User Station)	Mosaic	2.4			
	emacs	19.28.1		GNU	
	ghostview	1.5		GNU	
	gzip	1.2.4		GNU	
	gunzip	1.2.4		GNU	
	sudo	1.3.1pl4			
	zmail	None identified			
	XV	None identified			
FOS-EOC-11(Console Manager)	None Identified				
FOS-EOC-12 (Console Manager)	None Identified				
FOS-EOC-13	None Identified				
MSS-EOC-1	None Identified				
MSS-EOC-2 Management Subsystem Workstation	Mosaic	2.4			
	emacs	19.28.1		GNU	
	ghostview	1.5		GNU	
	gzip	1.2.4		GNU	
	gunzip	1.2.4		GNU	
	sudo	1.3.1pl4			
	zmail	None identified			
	XV	None identified			
MSS-EOC-3 Management Subsystem Server	Traceroute	None Identified			
	gzip	1.2.4		GNU	
	Kerberos	5		Cygnus	
MSS-EOC-4	Sudo	1.3.1pl4			

4.2 FOS Custom Software

FOS custom software consists of a number of components. Ten subsystems are required to make a complete FOS build. The software is available for the following architectures:

- DEC
OSF 3.2
- SUN
Sun Solaris 2.5.1

A file listing may be generated from the delivered tar file using the `tar -tvf` command.

4.2.1 FOS Custom Software Version 1.02.00 Patch File Listing

The following listing provides the version 1.02.00 patch files generated by the build process and the installation process. The directory listing in Appendix E contains the delivered custom software required to support the EOC operation and is available from delivered TAR tapes. The directory listing supporting this patch is a subset of the delivered TAR tape.

A description of the software functionality that has been corrected in this patch is described in section 5.1.1. The specific source code that was changed is identified below.

This list is further separated by the following categories:

- Executables
- Service Files
- Data Files
- Database Files
- Scripts/Setup Files
- Source Files

The source files provided are identified by FOS subsystems as follows:

- foscommon2 — FOS Common Subsystem
- ANA — Analysis Subsystem
- DMS — Data Management Subsystem
- FUI3 — FOS User Interface Subsystem /fui3
- CMS — Command Management Subsystem cms.tar
- CMD3 — Command Subsystem cmd
- PAS — Planning and Scheduling Subsystem
- RCM — Real-Time Contact Management Subsystem
- TLM2 — Telemetry Subsystem tlm

Executables

(DEC)

12148736	.../FoNsNameServer
6471680	.../FoPsParameterServer
5046272	.../FoSwNameServerSweeper
11919360	.../FoRfReflector
9863168	.../FcCdFormat
7610368	.../FcCmFop
8298496	.../FcCmXmit
15155200	.../FmLdAM1LoadCatalog
15032320	.../FmScAM1ScheduleController
11206656	.../FmGsGroundSchedule
7929856	.../CreateRTS
5840896	.../DeleteRTS
8994816	.../FmPcTest
1990656	.../DumpUplinkImage
7462912	.../ncc
13033472	.../FdDbLoadCatSrv
12861440	.../FdDbTableDefSrv
7757824	.../FdArTImArchiver
7282688	.../TImRetriever
24284800	.../FdDbBuildTImOdf
9256960	.../FdDbBuildFuiCmdOdf
8593408	.../FdDbBuildEventOdf
11493376	.../FdDbBuildSysOdf
8265728	.../FdDbBuildAnIOdf
9224192	.../FdDbBuildCmsOdf
9207808	.../FdDbBuildNccOdf
9224192	.../FdDbNameServerWebClient
9756672	.../FdDbFormEvtWebDbClient
11780096	.../FdDbOrbEvtWebClient
12435456	.../FdDbOdfTable
9134080	.../FdDbGroundParamWebClient
12525568	.../FdDbOrbitEventServer
9125888	.../FdDbEvtDefWebDbClient
13754368	.../FdQmQueueMgr
6086656	.../FdEvEventHandler
7806976	.../FdEvEventArchiver
5947392	.../FdEvEventRouter
12836864	.../FdDbEventDbSrv
12533760	.../FdDbFileMetaServer
12165120	.../FdDbTImCataServer
17637376	.../FuGsGroundScriptControl
21020672	.../FpAdActivityDefiner
19070976	.../FpBdBapDefiner
6832128	.../FpEhEventHandler
10199040	.../FpFsAsterFilter
19054592	.../FpGsGeneralScheduler
10838016	.../FpLgLoadGenerator
19931136	.../FpLqLoadQueuer
9789440	.../FpNsNameServer
12746752	.../FpRmResourceModel
22831104	.../FpTITimeline
11264000	.../FgGmNccGroundMgr
8839168	.../FgSmNccStatusMgr
7225344	.../FgEiEdosIn

7430144 .../FgEoEdosOut
 5668864 .../FrRpRepeater
 15859712 .../FrGrStringMgr
 11165696 .../FtDcDecom
 1556480 .../sns

(SUN)

3419816 .../FoNsNameServer
 1894012 .../FoPsParameterServer
 1435804 .../FoSwNameServerSweeper
 3394452 .../FoRfReflector
 3511928 .../FaAcCruncher
 2658592 .../FaRmRequestManager
 1520544 .../FaDrReaderDriver
 3061308 .../FcCdFormat
 4864180 .../FmLdAM1LoadCatalog
 4799780 .../FmScAM1ScheduleController
 3636588 .../FmGsGroundSchedule
 2504252 .../CreateRTS
 1706492 .../DeleteRTS
 2792772 .../FmPcTest
 586336 .../DumpUplinkImage
 3736404 .../FdDbLoadCatSrv
 3713328 .../FdDbTableDefSrv
 2367320 .../FdArTlmArchiver
 2213072 .../TlmRetriever
 5092724 .../FdDbBuildTlmOdf
 2733224 .../FdDbBuildFuiOdf
 2547804 .../FdDbBuildFuiCmdOdf
 2329100 .../FdDbBuildEventOdf
 3264792 .../FdDbBuildSysOdf
 2222920 .../FdDbBuildAnlOdf
 2542228 .../FdDbBuildCmsOdf
 2589624 .../FdDbBuildNccOdf
 2523224 .../FdDbBuildPidsOdf
 2523628 .../FdDbNameServerWebClient
 2719284 .../FdDbFormEvtWebDbClient
 3395500 .../FdDbOrbEvtWebClient
 2499488 .../FdDbGroundParamWebClient
 3619940 .../FdDbOrbitEventServer
 2514272 .../FdDbEvtDefWebDbClient
 3536236 .../FdDbOdfTable
 3944632 .../FdQmQueueMgr
 1776816 .../FdEvEventHandler
 2362460 .../FdEvEventArchiver
 1719500 .../FdEvEventRouter
 3705628 .../FdDbEventDbSrv
 3559704 .../FdDbFileMetaServer
 3453112 .../FdDbTlmCataServer
 575092 .../CreateTlmCmdFilterKeys
 2994172 .../FuEcEnvCtrl
 2470620 .../FuAnHandler
 2884108 .../FuEvEvtDis
 6148296 .../FuGsGroundScriptControl
 4147088 .../FuLbTableLoadBuilder
 3755080 .../FuLmLoadManager
 5361620 .../FuPbProcBuilderWin

4842096	.../FuPcProcController
2051228	.../FuRbRoomBuilder
3092864	.../FuDbWriteDefs
1872584	.../FuDbWritePms
1856684	.../writeRoom
32768	.../evtdis.uid
8054980	.../CmdControl
8751248	.../DisplayBuilder
5048508	.../FuAnBuild
6323924	.../DynamicPage
6855692	.../FuCwControlWindow
7463468	.../FpAdActivityDefiner
6546620	.../FpBdBapDefiner
3050004	.../FpEhEventHandler
5251156	.../FpFsAsterFilter
6899936	.../FpGsGeneralScheduler
4326384	.../FpLgLoadGenerator
7853372	.../FpLqLoadQueuer
3610752	.../FpNsNameServer
6222660	.../FpRmResourceModel
7524344	.../FpTITimeline
3619792	.../FgGmNccGroundMgr
2764120	.../FgSmNccStatusMgr
2177064	.../FgEiEdosIn
2278508	.../FgEoEdosOut
2181416	.../ncc
1649776	.../FrRpRepeater
5374264	.../FrGrStringMgr
3396888	.../FtDcDecom
2145956	.../A2tlm
5042928	.../createCmdActs
5040312	.../createCmds
1349508	.../FdEvEventDriver
1514320	.../sns

Service Files

N/A

Data Files

102	.../data.db
135	.../hw.db N/A

Database Files

N/A

Script/Setup Files

3202	.../A2_DataServerStartup
2154	.../A2_UserStationStartup
1445	.../A2_UserStationStartup_NONPAS
6244	.../FosEnvVars
6760	.../MyKill

Source Files

(ana2)	
12213	.../datasets/src/FaAcAppl.C

(dms4)

1366	.../Archiver/src/main.C
25794	.../FosDb/src/packet_defs_data.sql
6019	.../NccOdf/src/FdDbBuildNccOdf.C
646	.../NccOdf/src/FdDbBuildNccOdfMain.C
1195	.../TlmRetriever/src/main.C

(fui3)

139011	.../FuAn/src/FuAnBuildHistoryRequest.C
5907	.../FuAn/src/FuAnBuildMain.C
20246	.../FuAn/src/FuAnParentRequest.C
102823	.../FuAn/src/FuAnTlmSelectWin.C
2557	.../FuCw/make/Makefile
4492	.../FuCw/src/FuCwControlWindow.C
172124	.../FuCw/src/FuCwFilter.C
5391	.../FuCw/src/FuCwRegCtrlWinMain.C
15460	.../FuCw/src/FuCwXrtTable.C
33814	.../FuCw/src/FuUtSelectionBox.C
13426	.../FuDb/include/FuDbPalette.h
2393	.../FuDb/make/Makefile.writeDefs
2390	.../FuDb/make/Makefile.writePms
4913	.../FuDb/src/FuDbDisplayBuilderMain.C
93899	.../FuDb/src/FuDbPalette.C
5894	.../FuDb/src/FuDbWriteDefs.C
3474	.../FuDb/src/FuDbWritePms.C
2121	.../FuEc/include/FuEcProxy.iC
2715	.../FuEc/make/Makefile
114330	.../FuEc/src/FuEcController.C
13007	.../FuEc/src/FuEcProxy.C
7776	.../FuEv/src/mrmapplication.C
188	.../FuHp/data/FixPreferences
7848	.../FuHp/data/FosHome.html
1074	.../FuHp/data/FosNetscape
1567	.../FuHp/data/back.html
1571	.../FuHp/data/forward.html
1605	.../FuHp/data/opscene.html
8864	.../FuHp/src/FuHpHelp.C
5777	.../FuLb/src/FuLbMain.C
4499	.../FuLm/src/FuLmMain.C
110	.../FuRm/data/Control_Window.pms
1595	.../FuRm/data/toolSystem.dat
21859	.../FuRm/include/FuRmController.h
7961	.../FuRm/include/FuRmController.iC
3681	.../FuRm/include/FuRmTypes.h
755	.../FuRm/make/Makefile
3980	.../FuRm/make/Makefile.writeRoom
64250	.../FuRm/src/FuRmController.C
6879	.../FuRm/src/writeRoom.C
15860	.../FuSf/include/FuSfSelectionFilterWin.h
54752	.../FuSf/src/FuSfRowColumnScrollFilter.C
103541	.../FuSf/src/FuSfSelectionFilterWin.C
12997	.../FuTd/include/FuTdTypes.h
53271	.../FuTd/src/FuTdDynamicPage.C
2791	.../FuTd/src/FuTdDynamicPageMain.C
7143	.../FuTd/src/FuTdFlags.C
14172	.../FuTd/src/FuTdValue.C

5292 .../FuTs/include/FuTsPairTimeSelectorWin.h
 2197 .../FuTs/include/FuTsWin.h
 2597 .../FuTs/src/FuTsDialogShell.C
 16782 .../FuTs/src/FuTsIntervalTimeSelectorWin.C
 23603 .../FuTs/src/FuTsPairTimeSelectorWin.C
 211977 .../FuTs/src/FuTsPairTimeWidget.C
 64633 .../FuTs/src/FuTsSingleTimeSelectorWin.C
 4672 .../FuTs/src/FuTsWin.C
 26528 .../FuUt/src/FuUtListbox.C
 2902 .../unsupported/FuTs/src/main-driver.C

(cms)

1839 .../unsupported/make/Makefile.CreateRTS
 1840 .../unsupported/make/Makefile.DeleteRTS
 2100 .../unsupported/make/Makefile.FmPcTest
 1311 .../unsupported/make/Makefile.UplinkDmp

(cmd3)

2812 .../fop/include/FcCmTcFrame.h
 14259 .../fop/src/FcCmTcFrame.C
 6434 .../format/include/FcCdCmdController.h
 4569 .../format/include/FcCdCmdCouplerCB.h
 4205 .../format/include/FcCdCmdPortalCB.h
 4079 .../format/include/FcCdRtCmd.h
 1287 .../format/include/FcCdTypes.h
 2152 .../format/make/Makefile
 32379 .../format/src/FcCdCmdController.C
 9245 .../format/src/FcCdCmdCouplerCB.C
 10907 .../format/src/FcCdCmdPortalCB.C
 2452 .../format/src/FcCdFormatMain.C
 26372 .../format/src/FcCdRtCmd.C
 8357 .../xmit/include/FcCmTransmitController.h
 37697 .../xmit/src/FcCmTransmitController.C
 1635 .../xmit/src/FcCmTransmitMain.C

(foscommon2)

2805 .../common/FoEv/include/FcCEvEvents.h
 2651 .../common/FoEv/include/FgCEvEvents.h
 2762 .../common/FoEv/include/FrCEvEvents.h
 3024 .../common/FoIp/make/Makefile
 2568 .../common/FoRf/include/FoRfCouplerCb.h
 2311 .../common/FoRf/include/FoRfDataPortalCb.h
 1812 .../common/FoRf/include/FoRfReflector.h
 2517 .../common/FoRf/include/FoRfSrvAppl.h
 1707 .../common/FoRf/make/Makefile
 8495 .../common/FoRf/src/FoRfCouplerCb.C
 8601 .../common/FoRf/src/FoRfDataPortalCb.C
 930 .../common/FoRf/src/FoRfMain.C
 5447 .../common/FoRf/src/FoRfReflector.C
 9988 .../common/FoRf/src/FoRfSrvAppl.C
 3360 .../common/FoSw/include/FoSwSweeperAppl.h
 1140 .../common/FoSw/make/Makefile
 10233 .../common/FoSw/src/FoSwSweeperAppl.C
 1209 .../common/FoSw/src/FoSwSweeperMain.C
 1816 .../common/FoUt/include/FoUtTypes.h
 8019 .../common/ecs/include/EcStd.h
 44677 .../make/make.options

5372 .../make/make.targets
 1445 .../make/makerec.include
 1068 .../proxy/cms/FmCp/make/Makefile
 713 .../proxy/cms/Makefile
 9269 .../proxy/dms/FdLg/include/FdEvEventLogger.h
 26366 .../proxy/dms/FdLg/src/FdEvEventLogger.C
 2118 .../scripts/dev/A2_UserStationStartup
 1290 .../unsupported/.buildrc
 1290 .../unsupported/FoNs/.buildrc
 1288 .../unsupported/FoNs/.buildrc.old
 1956 .../unsupported/FoNs/include/FoNsCliAppl.h
 1821 .../unsupported/FoNs/include/FoNsCliMessageCb.h
 2006 .../unsupported/FoNs/include/FoNsToolAppl.h
 1575 .../unsupported/FoNs/make/Makefile.cli
 1567 .../unsupported/FoNs/make/Makefile.util
 12295 .../unsupported/FoNs/src/FoNsCliAppl.C
 979 .../unsupported/FoNs/src/FoNsCliMain.C
 3582 .../unsupported/FoNs/src/FoNsCliMessageCb.C
 13587 .../unsupported/FoNs/src/FoNsToolAppl.C
 554 .../unsupported/FoNs/src/FoNsToolMain.C
 1288 .../unsupported/FoPs/.buildrc
 2803 .../unsupported/FoPs/include/FoPsCliAppl.h
 2015 .../unsupported/FoPs/include/FoPsCliMessageCb.h
 546 .../unsupported/FoPs/include/FoPsRwConsts.h
 2540 .../unsupported/FoPs/include/FoPsToolAppl.h
 1717 .../unsupported/FoPs/make/Makefile.cli
 1721 .../unsupported/FoPs/make/Makefile.util
 23885 .../unsupported/FoPs/src/FoPsCliAppl.C
 1141 .../unsupported/FoPs/src/FoPsCliMain.C
 6329 .../unsupported/FoPs/src/FoPsCliMessageCb.C
 11720 .../unsupported/FoPs/src/FoPsToolAppl.C
 1175 .../unsupported/FoPs/src/FoPsToolMain.C
 3800 .../unsupported/FoPs/src/tmplinst.C
 743 .../unsupported/FoTm/make/Makefile

(pas)
 2861 .../.buildrc
 25110 .../ac/src/FpAcActivity.cc
 8413 .../bd/src/FpBdActListWin.cc
 9929 .../bd/src/FpBdAppl.cc
 12784 .../bd/src/FpBdApplShell.cc
 8446 .../bd/src/FpBdParamWin.cc
 6195 .../bd/src/FpBdSchedWin.cc
 1232 .../fosscripsts/scripts/A2_ISTStartup_PAS
 47 .../fosscripsts/scripts/clean_pas.script
 628 .../fosscripsts/scripts/clean_sns_tbls.sql
 272 .../fosscripsts/scripts/st_cmdActs
 222 .../fosscripsts/scripts/st_cmds
 29962 .../gs/src/FpGsApplShell.cc
 12180 .../lq/src/FpLqAppl.cc
 16973 .../lq/src/FpLqConverter.cc
 753 .../make/make.options
 982 .../ns/make/Makefile
 340 .../scripts/st_ns
 110 .../unsupported/Makefile
 837 .../unsupported/ca/make/Makefile
 894 .../unsupported/cc/make/Makefile

(rcm3)

14762 .../EdosIn/src/FgEiManager.C
26243 .../EdosOut/src/FgEoManager.C
55058 .../NccGroundMgr/src/FgGmManager.C
24517 .../NccStatusMgr/src/FgSmManager.C
2780 .../common/include/FgNcConfig.h
2047 .../common/include/FgRcSignalHandler.h
6954 .../common/src/FgNcConfig.C
5707 .../common/src/FgRcSignalHandler.C
2528 .../common/src/FgRcXdrRecDecoder.C
2526 .../common/src/FgRcXdrRecEncoder.C
40372 .../unsupported/src/GenGcmrOdb.C

(rms2)

10400 .../common/src/FoGnCsmsIF.C
5067 .../stringmgr/include/FrGrPrivilegeRequest.h
7423 .../stringmgr/include/FrGrReplayServiceRequest.h
8211 .../stringmgr/include/FrGrStringConnectRequest.h
23021 .../stringmgr/src/FrGrAppl.C
19657 .../stringmgr/src/FrGrCommandPrivilegeRequest.C
81353 .../stringmgr/src/FrGrCommandProcess.C
85474 .../stringmgr/src/FrGrController.C
7523 .../stringmgr/src/FrGrCouplerCb.C
25669 .../stringmgr/src/FrGrDataArchiver.C
20455 .../stringmgr/src/FrGrGroundControlPrivilegeRequest.C
28852 .../stringmgr/src/FrGrGroundScriptController.C
11135 .../stringmgr/src/FrGrMcastHandler.C
27180 .../stringmgr/src/FrGrParameterServer.C
8324 .../stringmgr/src/FrGrPrivilegeRequest.C
17915 .../stringmgr/src/FrGrRTContact.C
48184 .../stringmgr/src/FrGrRcmProcess.C
64200 .../stringmgr/src/FrGrRealtimeServiceRequest.C
22198 .../stringmgr/src/FrGrReconfigRequest.C
15019 .../stringmgr/src/FrGrRepeater.C
50541 .../stringmgr/src/FrGrReplayServiceRequest.C
14352 .../stringmgr/src/FrGrRequest.C
18207 .../stringmgr/src/FrGrRequestBuilder.C
50906 .../stringmgr/src/FrGrRequestHandler.C
8044 .../stringmgr/src/FrGrRtsRmsRequestProxy.C
10584 .../stringmgr/src/FrGrServiceRequest.C
54829 .../stringmgr/src/FrGrSimulationServiceRequest.C
3976 .../stringmgr/src/FrGrStrListRequest.C
38977 .../stringmgr/src/FrGrStringConnectRequest.C
26161 .../stringmgr/src/FrGrStringDeleteRequest.C
11972 .../stringmgr/src/FrGrStringDisconnectRequest.C
13026 .../stringmgr/src/FrGrTableUpdateRequest.C
67477 .../stringmgr/src/FrGrTelemetry.C
61173 .../stringmgr/src/FrGrTelemetryProcess.C
10170 .../stringmgr/src/FrGrWsRmsRequestProxy.C

(tlm2)

29091 .../decom/src/FtDcCcadsPrimaryHeader.C
9618 .../decom/src/FtDcDataReceiver.C
51763 .../decom/src/FtDcDecomAppl.C
42209 .../decom/src/FtDcEsh.C
16398 .../decom/src/FtDcHiLoLimitSet.C

19239 .../decom/src/FtDcParameter.C
16510 .../decom/src/FtDcParameterTable.C
9595 .../decom/src/FtDcPolyConversion.C

4.2.2 FOS Custom Software Copyright Notice

The archive tape delivered with this document contains a tar file and a copyright file. The name of the copyright file is ECS_COPYRIGHT.asc. The content of the copyright file follows:

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5. Non-Conformance Status

5.1 Non-Conformance Status Overview

This section contains the list of problems closed (section 5.2) as of 3/11/97 with this patch delivery. These problems were found and recorded during development and integration testing and captured in the formal problem tracking system, Distributed Defect Tracking System (DDTS). This list has been reviewed by HITC management and the FOS system is considered to be acceptable for delivery at this time. The list includes the NCR ID, Software, Title, Severity, and Problem description. DDTS problem severity definitions, on a 1-5 scale, are defined as follows:

- 1 Catastrophic bug without workaround that causes total failure or unrecoverable data loss.
Example: system crash or lost user data.
- 2 Bug which severely impairs functionality. Workaround might exist but is unsatisfactory.
Example: can not use major product function.
- 3 Bug that causes failure of noncritical system aspects. There is a reasonably satisfactory workaround.
Example: user data must be modified to work.
- 4 Bug of minor significance. Workaround exists or, if not, the impairment is slight.
Example: error messages are not very clear.
- 5 Very minor defect. Workaround exists or the problem can be ignored.
Example: bad layout or misuse of grammar in manual.

5.1.1 Installed Changes

FOS is delivering the IST patch with this VDD. The IST patch addresses modifications to support real-time telemetry monitoring, scheduling, procedure building, or display building capabilities. This IST patch contains the modifications for each FOS subsystem as described:

- Telemetry — Decom event messages
- Command — New and modified event messages were provided.
- Resource Management — Modifications were made to the RMS String Manager process to catch exception sent by the RCM process when it was shut down. Modifications were also provided for more meaningful event messages
- Real-Time Contact Management — Modifications were made for a more meaningful event message for external IP connection
- Data Management — Modifications were made to data used to build messages passed to the NCC by the RCM NCC process.
- Command Management — No modifications were made to this subsystem

- Analysis — Modifications were made to an event message received upon analysis request submittal
- Planning and Scheduling — Modifications were made to the following functions:
 - General Scheduler
 - Load Queuer
 - BAP Definer
 In addition, a CM change was made to the PAS Makefile.
- FOS User Interface — Modifications were made to the following functions:
 - Display Builder
 - Selection Filter
 - Control Window
 - Write Defs
 - Analysis Request Builder
 - Environment Controller
 - Dynamic Page
 - Event Display
 - Parser
 - Procedure Builder
 - Help Window
- Common Software — Modifications were made to the FoIp Motif Notifier so that FUI processes will execute faster. Reflectors are included to allow the EOC to send and receive multicast data from an IST. FOS Common and Proxy code now compiles on Solaris 2.5.1 with the SUN C++ 4.1 compiler.

A listing of the set of NCRs corrected in this patch are included in section 5.2

5.2 FOS Non-Conformance Reports (Closed Status)

This section summarizes the NCRs closed with delivery of the IST patch (version 1.02.00). Twenty-three NCRs have been closed with the delivery of this patch.

NCR ID: ECSed05724

Software: telemetry

Title: Performance Issue (IST)

Severity: 1

Related DR None

Problem: Using the IST in the connected mode, the IST user station is very slow when any type of telemetry decom or Analysis request is being performed. The Performance meter pegs out at 100% for at least 15 minutes.

NCR ID: ECSed05743

Software: events

Title: Event screen freeze at IST UserStation (year 2000).

Severity: 1

Related DR None

Problem: When flowing events from the Mini-EOC subnet to the Mini-EOC_IST subnet, if events are arriving back-to-back sometimes the event displays would freeze and eventually die. Appears the display process perceives a year 2000 then freezes upon next arrived event with proper year.

NCR ID: ECSed02690
Software: telemetry
Title: Decom is not processing all packets sent from the Generator
Severity: 2
Related DR None
Problem: Decom reports missing packets, usually in groups of 6-8. The Driver was sending 1 telemetry packet every 2 seconds.

NCR ID: ECSed03438
Software: desktop
Title: Parameter Picker Window Can't Pick Parameters
Severity: 2
Related DR None
Problem: The selection Filter of the Parameter Picker is black cannot pick parameters to fill onto page display.

failed- this problem still occurs- try again intermittent problem.
D.O. 11/21/96

NCR ID: ECSed03502
Software: desktop
Title: Process PMS Does Not Make Pages Active
Severity: 2
Related DR None
Problem: ProcessPms copies newpages to active pages but the pages still don't come up when called. They also do not appear under TlmWins.

NCR ID: ECSed03959
Software: telemetry
Title: FoIp Motif Notifier Is Using Too Much CPU
Severity: 2
Related DR None
Problem: The FoIp Motif Notifier is very inefficient. It is directly responsible for 20-30% CPU utilization in FUI processes that are relatively inactive (i.e., not sending or receiving lots of data/classes). This is a well known and understood problem that was pushed off until a later time, when FoIp was first built. Now, due to performance issues we can no longer limp along with the existing code. The FoIp Motif Notifier needs to be fixed ASAP.

NCR ID: ECSed03962
Software: analysis req
Title: Selection Filter bug when items are selected before hitting O.K.
Severity: 2
Related DR None
Problem: The selection filter window will not work properly if the user selects an item in the "selected" list and then hits O.K. After that, the window behaves incorrectly.

NCR ID: ECSed04699
Software: command

Title: PAS Load Queuer core dumps
Severity: 2
Related DR None
Problem: The PAS Load Queuer core dumps if an activity spans outside the boundary of the DAS. Note: This problem also happened at the EOC.

NCR ID: ECSed04961
Software: sys admin
Title: Multicast to ISTs
Severity: 2
Related DR None
Problem: ISTs communicate with the EOC over NSI, which does not support multicast. FOS must provide point-to-point communications with IST users for all FOS services which normally use mutlicast within the EOC.

NCR ID: ECSed05104
Software: sys mgmt
Title: String Delete is not deleting RCM
Severity: 2
Related DR None
Problem: When doing a String Delete Request, RMS stops deleting processes halfway through RCM shutdown.

NCR ID: ECSed05127
Software: sys admin
Title: Changes required to FOS Common to support Solaris 2.5.1.
Severity: 2
Related DR None
Problem: Several compilation problems have been encountered when trying to compile FOS Common S/W on SUN Solaris 2.5.1 and SUN C++ 4.1.

NCR ID: ECSed05725
Software: events
Title: Event Display Disappears
Severity: 2
Related DR None
Problem: When using the IST in the connected mode, the Event Display occasionally collapses and disappears from the IST terminal (Sneezer)?

NCR ID: ECSed03130
Software: sys admin
Title: PAS Makefile does not include makes for st_cmdActs and st_cmds
Severity: 3
Related DR None
Problem: In baselining all FOS s/w files, there are two executables used to process database files act.db and command.db within PAS.

The specific ClearCase pathnames are:

/ecs/formal/fos/pas/fosscripts/scripts/config/make.cmd

/ecs/formal/fos/pas/fosscripts/scripts/config/make.cmdActs

These two makes should be included in the PAS Makefile, to ensure any changes to the source files

/ecs/formal/fos/pas/fosscripts/scripts/config/createCmds.cc

/ecs/formal/fos/pas/fosscripts/scripts/config/makeCmdActs.cc

get propagated from ClearCase out to the /dev, /int, /test environments.

NCR ID: ECSed03271

Software: scheduling

Title: BAP Definer Crashed

Severity: 3

Related DR None

Problem: BAP Definer crashed when we set sequence=3 and Event=SUNSET within the Scheduling Information window.

NCR ID: ECSed03901

Software: analysis req

Title: Analysis Request: Good Data only is not the default

Severity: 3

Related DR None

Problem: F-ANA-03070 The default data selection for an analysis request should be good data only but it is all data.

NCR ID: ECSed03905

Software: analysis req

Title: Analysis Telem Selectr: Params must be deselected

Severity: 3

Related DR None

Problem: After a parameter is selected for analysis, the user must deselect it before selecting the next parameter or it will be selected a second time and a message will be displayed stating that the parameter was already selected.

NCR ID: ECSed03997

Software: telemetry

Title: No space between mnemonic and data value

Severity: 3

Related DR None

Problem: On the Telemetry Header and TLM Decom pages, there is no space between the parameter mnemonic and the telemetry data value when the mnemonic is 20 characters long. There should always be at least one space to improve legibility

NCR ID: ECSed04385
 Software: events
 Title: Search string text on event displays is blanked out
 Severity: 3
 Related DR None
 Problem: When entering text for searching events the text in the "search string" field is grayed out

NCR ID: ECSed04453
 Software: analysis req
 Title: Badly worded event msg upon analysis request submittal
 Severity: 3
 Related DR None
 Problem: When submitting analysis request received msgs string x was created instead of meaningful event msg

NCR ID: ECSed04771
 Software: procs
 Title: Some arithmetic operations not allowed for PROC's
 Severity: 3
 Related DR None
 Problem: All required arithmetic operations were not accepted when constructing PROC's i.e., Logical AND, Logical OR

NCR ID: ECSed05024
 Software: command
 Title: New and modified event messages
 Severity: 3
 Related DR None
 Problem: The following command event messages are new or require modification to increase clarity:

 1069, 1065, 1066, 1019, 1071, 1081, 1063, 1015, 1014, 1017, 1011, 1012, 1067, 1068, 1070, 1064, 1072

NCR ID: ECSed05103
 Software: sys mgmt
 Title: Events need to be more FOT friendly
 Severity: 3
 Related DR None
 Problem: The RMS Events looked more like Debug messages rather than events for the FOT to make sense of.

NCR ID: ECSed05270
 Software: analysis req
 Title: Analysis Requests are not being sent to the Queue Manager
 Severity: 3
 Related DR None
 Problem: The FuAnHandler process does not send requests to the Queue Manager.

5.3 FOS Non-Conformance Reports (Open Status)

To obtain the status of the remaining open NCRs, the DDTS system can be accessed from the following WEB page:

<http://newsroom.sit/ddts/ddts.html>

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Appendix A. Build Instructions

This appendix describes the necessary build procedures which will be used for installing the FOS custom software released by the Configuration Management Organization (CMO) at the EOC. The system build takes place at the Landover facility utilizing the ClearCase CM tool. Configuration management of the source files used to build executables is maintained at the Landover facility. Executables produced as a result of the build process are delivered to the EOC. Installation of the executables and supporting data/configuration files are discussed in Appendix B.

A.1 Build Process

The FOS custom software build process is performed in order to generate a new set of executables. These files are subsequently loaded into specific workstations and file servers in order to meet the functional requirements of the FOS program.

The build process inputs consist of the following:

1. ClearCase views for each sub-system
2. The correct file versions dictated by the views' configuration specification
3. The pertinent NCRs that were addressed by the build

Scripts are invoked in order to perform the builds. There are two ways of actually doing this. One is by using an enhanced version of ClearCase's Graphical User Interface (GUI). The other is by keying in commands and executing them in a Command Line Interface (CLI). The GUI performs the same commands as the CLI, however the GUI executes the scripts by pointing and clicking a mouse, rather than keying in all of the detail UNIX and Cleartool commands.

The FOS custom software is partitioned into ten (10) areas. The first partition is known as FOSCOMMON, and is comprised of common code that is referenced by the remaining nine subsystems. The nine subsystems are:

- Analysis Subsystem (ANA)
- Command Subsystem(CMD)
- Command Management Subsystem (CMS)
- Data Management Subsystem (DMS)
- FOS User Interface Subsystem (FUI)
- Planning and Scheduling Subsystem (PAS)
- Real-Time Contact Management Subsystem (RCM)
- Resource Management Subsystem (RMS)
- Telemetry Subsystem (TLM)

FOSCOMMON is built *first*. DMS is built *last*. Other than these two constraints, the build order is arbitrary. Each subsystem is built by performing the following five steps:

- Set the view
- Set the path to the subsystem
- Specify the target platform (Sun or DEC)
- Source the .buildrc file
- Enter `Clearmake -C GNU -V`

The CLI interface commands are located in the /scripts/ area. The xclearcase GUI enhanced menu, Configuration Management/Change Control (CM/CC), performs all of the housekeeping for building FOS custom software.

A.2 GUI Build Process

The GUI build process is described below:

1. Ensure that the cm-cc.grp menu file resides in /home/\$USER/grp path
2. Run “xclearcase” from a licensed node

voyager{user}6: xclearcase &

Using the menu, select the view needed for building FOSCOMMON, expand the menu to fill the monitor by clicking the larger upper right corner button. Ensure that the subsystem make.targets file has the target platform set.

3. Click on “CM/CC”
4. Click on “Build FOS S/W”
5. Click on “Foscommon”
6. Display the transcripts window to provide visibility to the FOSCOMMON build.

The FOSCOMMON build is complete when the build-foscommon script finishes. For each of the remaining nine subsystems, perform the following steps:

7. Using the menu, select the view needed for building the next subsystem
8. Ensure that the subsystem make.targets file has the target platform set
9. Click on “CM/CC”
10. Click on “Build FOS S/W”
11. Click on the next subsystem
12. Display the transcripts window to provide visibility to the subsystem build. The FOSCOMMON build is complete when the build-subsystem script finishes

A record of the build is saved into a logfile, named /home/\$USER/logfile. This file can be saved and printed to record the build process for Quality Assurance purposes.

A.3 CLI Build Process

The CLI build process is described below:

1. Build FOSCOMMON:

Enter the command: `cleartool setview {appropriate view tag}`

2. Set the correct path for FOSCOMMON: `cd /ecs/formal/fos/foscommon2`
3. Ensure that the subsystem `make.targets` file has the target platform set. Enter the command: `source .buildrc`
4. Enter the command: `Clearmake -C GNU -V`

FOSCOMMON build is complete when the Clearmake finishes. For the remaining nine subsystems, perform the following steps:

A.3.1 Build ANA

1. Enter the command:

`cleartool setview {appropriate view tag}`

2. Set the correct path for ANA: `cd /ecs/formal/fos/ana2`
3. Ensure that the subsystem `make.targets` file has the target platform set
4. Enter the command: `source .buildrc`
5. Enter the command: `Clearmake -C GNU -V`

ANA build is complete when the Clearmake finishes

A.3.2 Build CMD

1. Enter the command:

`cleartool setview {appropriate view tag}`

2. Set the correct path for CMD: `cd /ecs/formal/fos/cmd2`
3. Ensure that the subsystem `make.targets` file has the target platform set
4. Enter the command: `source .buildrc`
5. Enter the command: `Clearmake -C GNU -V`

CMD build is complete when the Clearmake finishes

A.3.3 Build CMS

1. Enter the command:

```
cleartool setview {appropriate view tag}
```

2. Set the correct path for CMS: `cd /ecs/formal/fos/cms`
3. Ensure that the subsystem `make.targets` file has the target platform set
4. Enter the command: `source .buildrc`
5. Enter the command: `Clearmake -C GNU -V`

CMS build is complete when the Clearmake finishes

A.3.4 Build FUI

1. Enter the command:

```
cleartool setview {appropriate view tag}
```

2. Set the correct path for FUI: `cd /ecs/formal/fos/fui3`
3. Ensure that the subsystem `make.targets` file has the target platform set
4. Enter the command: `source .buildrc`
5. Enter the command: `Clearmake -C GNU -V`

FUI build is complete when the Clearmake finishes

A.3.5 Build PAS

1. Enter the command:

```
cleartool setview {appropriate view tag}
```

2. Set the correct path for PAS: `cd /ecs/formal/fos/pas`
3. Ensure that the subsystem `make.targets` file has the target platform set
4. Enter the command: `source .buildrc`
5. Enter the command: `Clearmake -C GNU -V`

PAS build is complete when the Clearmake finishes

A.3.6 Build RCM

1. Enter the command:

```
cleartool setview {appropriate view tag}
```

2. Set the correct path for RCM: `cd /ecs/formal/fos/rcm3`
3. Ensure that the subsystem `make.targets` file has the target platform set
4. Enter the command: `source .buildrc`
5. Enter the command: `Clearmake -C GNU -V`

RCM build is complete when the Clearmake finishes

A.3.7 Build RMS

1. Enter the command:

```
cleartool setview {appropriate view tag}
```

2. Set the correct path for RMS: `cd /ecs/formal/fos/rms2`
3. Ensure that the subsystem `make.targets` file has the target platform set
4. Enter the command: `source .buildrc`
5. Enter the command: `Clearmake -C GNU -V`

RMS build is complete when the Clearmake finishes

A.3.8 Build TLM

1. Enter the command:

```
cleartool setview {appropriate view tag}
```

2. Set the correct path for TLM: `cd /ecs/formal/fos/tlm2`
3. Ensure that the subsystem `make.targets` file has the target platform set
4. Enter the command: `source .buildrc`
5. Enter the command: `Clearmake -C GNU -V`

TLM build is complete when the Clearmake finishes

A.3.9 Build DMS

1. Enter the command:

```
cleartool setview {appropriate view tag}
```

2. Set the correct path for DMS: `cd /ecs/formal/fos/dms4`
3. Ensure that the subsystem make.targets file has the target platform set
4. Enter the command: `source .buildrc`
5. Enter the command: `Clearmake -C GNU -V`

DMS build is complete when the Clearmake finishes

The entire Build process is complete when all the subsystems have successfully built after the FOSCOMMON. It is now possible to begin the Installation process.

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Appendix B. Installation Procedure

This section outlines the installation procedure for the FOS custom software. The following procedures are performed following the successful build of the FOS system.

1. Login as foscm
2. Type “x &” to invoke the xclearcase tool
3. Select view from which system builds were performed
4. Select the CM/CC pull-down window option
5. Select target platform to install to (i.e., dec_osf_3-2)
6. Select Environment (CM Release, /cm environment)
7. Select Install S/W @ Mini-EOC
8. Select Install everything

Using the above procedures, a */fos/cm/am1* directory structure is populated with all the deliverable executables and support files required to support the delivery.

Execution of the following UNIX commands results in a tape being generated for delivery to the EOC.

1. `cd /fos/cm`
2. `tar cvf /fos/IST_patch.tar am1`
3. `cd /fos`
4. Insert a tape into the machine you are logged in to
5. `tar cf /dev/rmt0h IST_patch.tar`

Take the delivery tape to the EOC at GSFC and perform the following functions.

1. login, as root, to the machine where the delivery tape has been inserted
2. `cd /net/fosec2/fostools`
3. `tar xf /dev/rmt0h`
4. `cd /fos/test`
5. `cp am1 am1A2ECT1Orig`
6. `tar xvf /net/fosec2/fostools/IST_patch.tar`
7. `chown -R root am1`

8. `chgrp -R fosusers am1`
9. `chmod -R g+w am1`
10. `cd /fos/test/am1/scripts; chmod -R g-w setup`
11. `cd /fos/test/am1; chmod -R g-w bin`

Appendix C. Special Operating Instructions

The README file available with this IST patch for delivery is located on the tar file “IST_patch.tar”. The README file has not been verified. However, it does contain valid and useful information concerning the installation instructions and the NCRs fixed by this delivery.

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Appendix D. User Feedback Procedures

Feedback from the Users

Collating user feedback is one of the primary goals of FOS. Collected user feedback will be provided directly to the subsequent release teams for further assessment and action. Several feedback channels will be provided for effective collection of data.

URDB

Link to URDB will be provided on the FOS WEB page which is under construction.

Bulletin board

FOS bulletin board server is located on <http://newsroom.hitc.com/fos/fos.html>.

Non Conformance Reports (NCR)

NCRs for FOS are submitted using the FOS NCR WEB page (URL <http://newsroom.gsfc.nasa.gov/sit/ddts/ddts.html>). This page provides a direct link to the EDF DDTs database which tracks the FOS NCRs. The access is allowed only to authorized ECS users. The procedure for submitting NCRs is explained in detail in the Project Instruction (PI) SD-1-014, Software Nonconformance Reporting.

Feedback to the users

Keeping the users of the system informed about the status and operational aspects of the system is also as important as collecting feedback from the users. Consistent with this approach, users will be able to get FOS data from the following channels:

Bulletin board

Information will be posted to the bulletin board at <http://newsroom.hitc.com/fos/fos.html>.

FOS WEB Page

FOS WEB Page (under construction) will also provide useful information including access to the FOS documentation on-line.

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Appendix E. FOS Custom Software Version 1.02.00 Tar File Listing

The following directory listing contains the delivered custom software required to support the EOC operation and is available from the delivered TAR tapes. All of the generated run time executables are located in the /fos/test/am1/bin area. For the SUN platform the executables are located in the sun_sparc_5-5 subdirectory to /bin (e.g., the DynamicPage executable is located at /fos/test/am1/bin/sun_sparc_5-5).

The delivered tar-file “IST_patch.tar” consist of:

```
98620339 ../sun_IST.tar.Z
209461063 ../dec_IST.tar.Z
621 ../ECS_COPYRIGHT.asc
3072 ../config.tar
25088 ../scripts.tar
3808 ../README.ISTconfig.tar
```

The delivered tar-file “IST_FOSchanged-src.tar” consist of:

```
321024 ../foscommon2.tar
20480 ../ana2.tar
40960 ../dms4.tar
1587200 ../fui3.tar
20480 ../cms.tar
184320 ../cmd3.tar
163840 ../pas.tar
194560 ../rcm3.tar
1013760 ../rms2.tar
204800 ../tlm2.tar
621 ../ECS_COPYRIGHT.asc
```

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Abbreviations and Acronyms

ANA	Analysis Subsystem
CC	Change Control
CCB	Change Control Board (Hughes Convention)
CCR	Configuration Change Request
CCSDS	Consultative Committee for Space Data Systems
CDRL	Contract Deliverable Requirements List
CERES	Clouds and Earth Radiant Energy System
CI	Configuration Item
CLI	Command Line Interface
CLTU	Command Link Transmission Unit
CM	Configuration Management
CMD	Command Subsystem
CMO	Configuration Management Organization
CMS	Command Management Subsystem
COTS	Commercial off-the-shelf Software
CSMS	Communications and Systems Management Segment (ECS)
CRC	Cyclic Redundancy Code
CSC	Coordinate System Conversion
CSCI	Computer Software Configuration Item
CSS	Communication Subsystem
DAAC	Distributed Active Archive Center
DCE	Distributed Computing Environment
DCN	Document Change Notice
DDTS	Distributed Defect Tracking system
DID	Data Item Description
DMS	Data Management Subsystem

DSN	Deep Space Network
DSS	Data Server Subsystem
ECL	ECS Command Language
ECS	EOSDIS Core System
EDHS	ECS Data Handling System
EDOS	EOS Data and Operations System
EOC	EOS Operations Center
EOS	Earth Observing System
EOSAM	EOS AM Project (morning spacecraft series)
EOSDIS	EOS Data and Information System
EOSPM	EOS PM Project (afternoon spacecraft series)
ESDIS	Earth Science Data and Information System
FOP	Frame Operations Procedure
FOS	Flight Operations Segment
FOT	Flight Operations Team
ftp	File Transfer Protocol
FUI	FOS User Interface Subsystem
GSFC	Goddard Space Flight Center
GUI	Graphical User Interface
HAIS	Hughes Applied Information Systems
HITC	Hughes Information Technology Company
I&T	Integration & Test
I/O	Input/Output
IP	International Partner
ISS	Internetworking Subsystem
IST	Instrument Support Toolkit
LaRC	Langley Research Center
M&O	Maintenance and Operation
MET	Metadata

MSS	Management Subsystem
NASA	National Aeronautics and Space Administration
NCC	Network Control Center (GSFC)
NCR	Nonconformance Report
NCSA	National Center for Supercomputer Applications
PAS	Planning and Scheduling
PDB	Project Data Base
PDR	Preliminary Design Review
PI	Project Instruction or Principal Investigation
QA	Quality Assurance
RCM	Real-Time Contact Management Subsystem
RMS	Resource Management Subsystem
RRDB	Recommended Requirements Database
SCF	Science Computing Facility
SDP	Science Data Production
SDPS	Science Data Processing Segment
SDPF	Science Data Processing Facility
TBD	To Be Determined
TL	Team Leader
TLM	Telemetry Subsystem
TRMM	Tropical Rainfall Measuring Mission (joint US - Japan)
URL	Universal Research Locator
US	United States
WWW	World Wide Web

